

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Expanding the Economic and Innovation
Opportunities of Spectrum Through Incentive
Auctions

ET Docket No. 12-268

Via the ECFS

REPLY COMMENTS OF IEEE 802

1. IEEE 802¹ respectfully submits its Reply Comments in the above-captioned Proceeding².
2. IEEE 802, as a leading consensus-based industry standards body, produces standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless personal area networks (“WPANs”), wireless metropolitan area networks (“Wireless MANs”), and wireless regional area networks (“WRANs”). Included in our standards development activity is an emphasis on coexistence, which is the focus of our Wireless Coexistence working group. We appreciate the opportunity to provide these comments to the FCC.

INTRODUCTION

3. On October 2, 2012 the Commission issued a Notice of Proposed Rulemaking, under ET Docket 12-268, in which the Commission seeks comments on the proposed incentive auction of TV broadcast spectrum.
4. IEEE 802 has already published standards and is in the process of completing additional amendments to standards which support operation in the TV broadcast band under the Commission’s Part 15 rules for operation of TV band devices (“TVBDs”). These standards

¹ The IEEE Local and Metropolitan Area Networks Standards Committee (“IEEE 802” or the “LMSC”).

² This document represents the views of IEEE 802. It does not necessarily represent the views of the IEEE as a whole or the IEEE Standards Association as a whole.

and amendments support applications which include broadband wireless access in rural, remote and other areas, wireless local area network operations, including home, business and cellular data offload applications, and machine to machine (“M2M”) operations, including smart grid and smart metering applications.

5. IEEE 802 focuses its reply comments in this document on unlicensed white space channels. We support the Commission’s goals for unlicensed use of the unused TV White Spaces spectrum. , We firmly believe that the additional bandwidth and propagation characteristics of TV band White Spaces spectrum will significantly augment user experience by reducing outage, improving coverage and providing opportunities for new applications that are not well served using other unlicensed spectrum such as the 5GHz spectrum or the congested 2.4 GHz spectrum.

**FOR A SUCCESSFUL TVWS MARKET, EVERY HOUSEHOLD SHOULD BE ABLE
TO ACCESS THREE OR MORE UHF TVWS CHANNELS WITH MORE THAN 99%
CONFIDENCE**

6. Over 20 years of engineering and deployment experience with 802.11 in the 2.4 GHz band confirms that a minimum of three 6 MHz channels is required for successful WLAN deployments.
7. The 18 MHz of TVWS spectrum need not be contiguous or in the same location throughout the nation. In addition, the 18 MHz should come in minimum contiguous segments of 6 MHz.
8. It has been our experience that successful deployment of wireless technology will require ensuring a minimum number of quality channels (power levels on par with current TVWS regulations) on a nationwide basis including the metropolitan and urban areas. IEEE 802.11 is in the process of finalizing 802.11af specification, a new WLAN standard designed to operate in TVWS 6 MHz channels according to current FCC rules. In order to guarantee success in the market we believe that a minimum of 18 MHz of spectrum should be available in the largest metropolitan areas.
9. The location of the 6 MHz channels may come from of the following sources: remaining available TVWS channels, guard bands, Duplex Gap, channel 37 and the two channels allocated to wireless microphones.

**IEEE 802 RECOMMENDS THE COMMISSION SERIOUSLY CONSIDER THE
FOLLOWING CHANNEL ALLOCATION PARAMETERS**

10. We note that several approaches for unlicensed operation are described by the commission in Section VIII, paragraphs 227-239, in which IEEE 802 devices may be able to operate in the guard bands, Duplex Gap, channel 37 and channels reserved for wireless microphones. We strongly support usage of the Duplex Gap, guard bands, channel 37 and the two channels currently reserved for wireless microphones but would like to emphasize the following:
11. We note that several commenters have coalesced around a proposal ‘Down from Channel 51’ In light of this proposal we would like to emphasize the importance of ensuring that the entire spectrum under channel 51 will continue to be utilized by licensed, unlicensed, wireless microphones or TV operation. IEEE 802 Standards for operation in TVWS have been and are being developed to minimize interference to DTV reception in compliance with FCC rules. IEEE 802 is also developing standards and recommended practices, for example IEEE Std. 802.22.2 for installation and deployment of TVBDs. A similar engineering effort can address unlicensed device operation in the Duplex Gap and guard band without impacting licensed device operation.
12. Sharing of channel 37 and the wireless microphone channels with unlicensed devices would be of enormous value. Having a fixed known channel location for unlicensed devices can considerably reduce initial scanning time and power consumption.
13. Cellular uplink OOB may cause interference to nearby TV receivers and other authorized users, therefore, newly licensed device out of band emissions need to be specified considering all the authorized uses.
14. Current TVWS regulations for operation in adjacent channels are partially based on incumbent receivers’ performance. Some of those receivers were built without proper consideration for adjacent channel rejection requirements. Adequate adjacent channel rejection of all new devices should be required in this band.

CONCLUSION

15. We would like to thank the FCC for promoting usage of new frequencies under 1GHz for unlicensed usage.

16. The Commission should maximize the amount of spectrum available for unlicensed White Space device use in TV Broadcast bands. We would like to stress that successful deployment of wireless technology will require ensuring a minimum number of quality channels (power levels on par with current TVWS regulations) on a nationwide basis including the metropolitan and urban areas.
17. IEEE 802 strongly supports unlicensed devices for in the Duplex Gap, guard bands, channel 37 and the two channels currently reserved for wireless microphones.
18. We welcome this opportunity and expect that when the uncertainty of spectrum availability on a nationwide basis is removed, white space products will be widely deployed.

Respectfully submitted,

/s/

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